Welcome to the Division of Disease Prevention's Hepatitis C Virus (HCV) Frequently Asked Questions

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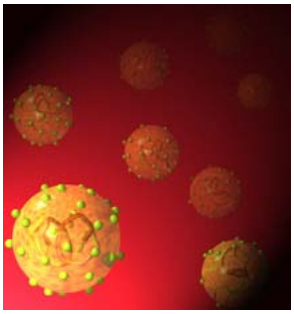

The hepatitis C virus, magnified by electron microscope

What is HCV?

Hepatitis C is inflammation of the liver caused by infection with the hepatitis C virus (HCV). Viruses are extremely small particles that cannot be seen by the naked eye. The hepatitis C virus belongs to the viral family, *Flaviviridae*. It was isolated in the laboratory for the first time in 1989, and before then was referred to as non-A/non-B hepatitis. There are six genetic types of HCV (1-6), and the type a patient has significantly affects the success of medical treatment for hepatitis C. The most common type in the United States is type 1, accounting for 75% of all HCV cases.

There is a chronic (lifelong) state of hepatitis C viral infection. This chronic state of hepatitis C kills 10,000-12,000 Americans each year.

Who becomes infected with HCV?

Anyone exposed to the hepatitis C virus can become infected. Estimates suggest that four million people living in the United States today have been infected by HCV at some time in their life.

- Of these people, one million have resolved the infection and cleared the HCV from their bodies completely.
- Three million are chronic carriers of HCV
- There are approximately 25,000 new HCV infections reported to the Centers for Disease Control and Prevention (CDC) each year.
- Over 175 million people world wide are chronic carriers of HCV.
- Even if you had HCV and resolved the infection, **you can still be re-infected**

In the U.S. there are three million chronic carriers of HCV who can spread the virus to others. Most of these people do not even know they are infected.

How do people become infected with HCV?

HCV is a blood-to-blood disease. This means that people usually become infected with HCV when the virus enters their bloodstream directly, usually by way of another person's infected blood. For example, transmission could occur when sharing intravenous (IV) drug needles, also known as "works." In general, the main ways of becoming infected with HCV are:

- Human blood-to-blood contact
- Perinatally (from mother to baby during delivery)

Other body fluids, such as saliva and tears, are very rarely a source of infection. Hepatitis C virus is not spread by contaminated food or water, and cannot be spread casually in the workplace

What groups of people are more at risk to become infected with HCV?

The reason the groups listed below are at higher-risk for the transmission of HCV is that they are more likely to have had direct contact with HCV-infected blood.

Injection drug users: 60% of all new infections

The most efficient way to become infected with HCV is to shoot drugs with a needle previously used by someone with HCV, because there is direct transmission of the hepatitis C viral particles into the bloodstream. For instance, 40% of injection drug users become infected with hepatitis C after only 1 year of drug use, and 80% of injection users become infected after 10 years of use.

Recipients of previously unscreened blood, blood products and organs; blood transfusion or solid organ transplant before 1992; coagulation factor concentrates before 1987.

By 1987 all coagulation factor concentrates (large molecules which help blood to clot) were able to be decontaminated from HCV, and by 1992 all blood and organs for transplant were able to be screened for evidence of HCV exposure.

Health care workers

Health care workers will likely come into contact with body fluids during their careers, and occasionally they will experience needlestick injuries (an accidental needle puncture of the skin during patient care). If the needle has not been used yet, a needlestick injury

poses little threat. However, if the needle was just used to draw the blood of someone with a bloodborne disease (such as HCV) then the possibility of infection exists.

Patients who have kidney problems and undergo routine dialysis

The kidneys filter our blood of many waste products. When they are unable to do so, blood dialysis on a regular basis is necessary to clear out these impurities. This process involves circulating a patient's blood through a complex system of filters. Occasionally, an HCV-infected patient's blood is not thoroughly removed from the dialysis machine. Other patients, whose blood circulates through the HCV-infected dialysis machine, can then pick up the hepatitis C viral particles and become infected.

Infants born to infected mothers

During the trauma of the delivery process exchanges of blood can occur from mother to child. Even a small transfer of blood can start an infection. However, only 5% of babies born to mothers who have HCV become infected with HCV themselves.

Persons with multiple sex partners or a diagnosis of a sexually transmitted disease

People who have sex with multiple partners generally do so with those who ***also*** have multiple sex partners. Because of this exposure to multiple partners, there is a greater chance of acquiring sexually transmitted infections (STIs). Many STIs such as herpes, when in the active state, result in open sores around the genitals. These sores can be very small or even invisible, but still allow for HCV-infected fluids to more easily enter the body. Additionally, people with multiple sex partners *are more likely to* partake in riskier—and sometimes unhealthy—behaviors which may put them at risk for coming into contact with someone else's blood or body fluids.

Someone who is HCV+ and in a long-term, monogamous relationship has only a 1-2% risk of infecting his or her partner with HCV.

People living in regions of the world with high rates of hepatitis C (e.g., Africa, Brazil and China).

Globally, About 175 million people worldwide are chronic carriers of HCV, and most infections occur in under-developed nations because of HCV-contaminated blood products and poorly sterilized syringes and needles. This can result in the transmission of thousands of hepatitis C infections among unsuspecting patients in clinics and physicians' offices. HCV infections have also been traced to unhygienic and unregulated tattoo artists and acupuncturists.

What are the signs and symptoms of someone ill from HCV?

Most people do not appear to be ill when they are infected with HCV. However, for those who do have evidence of acute illness, some of the signs--clues to a patient's condition which can be observed by a nurse or doctor—include**:**

- Vomiting
- Dark urine
- Clay-colored stools
- Sudden weight loss
- Jaundice (pronounced as 'jawn-dis', this is where the eyes and skin turn yellow).

Some of the symptoms--clues to a patient's condition which the patient *feels*, but cannot be observed by a nurse or a doctor—include**:**

- Decreased appetite
- Nausea
- Fatigue
- Pain in the upper-right belly
- Fever.

Three things to remember about the signs and symptoms of hepatitis C**:**

- 70-90% of people acutely infected with HCV will have no signs or symptoms at all**;**
- New evidence suggests that treatment of HCV during the acute phase may significantly help to prevent the infection from becoming chronic**;** and,
- New evidence suggests that people who show definite signs and symptoms during the initial HCV infection are actually *more likely* to clear the virus out of their bodies and avoid becoming chronic carriers of HCV.

If you are reading this web page and think you might have Hepatitis C right now, consult your primary healthcare provider for diagnosis and treatment options.

How long do the signs and symptoms last?

It can take up to six months for those who have been infected with HCV to have signs symptoms, but most who have them will do so by the twelfth week. Signs and symptoms may only last for a few weeks. Some people may feel weak or fatigued for months after these signs and symptoms disappear.

Many HCV+ people have no signs or symptoms for 10-20 years as they advance into serious chronic HCV liver disease without knowing it.

What tests are performed to determine if I have hepatitis C?

A blood sample is all that is needed in order to perform the necessary tests for HCV.

- EIA (enzyme immunosorbent assay) or CIA (enhanced chemiluminescence immunoassay)**:**

Looks for HCV antibodies circulating in the blood. **Antibodies are protein markers in the blood which tell you that at some point in the past your blood came into contact with HCV.** It can take up to six months for the HCV antibodies to become detectable, and this time is called the window period. Before the antibodies are detectable, the EIA or CIA test will be "negative." After the antibodies are detectable, the EIA or CIA test will be "positive."

- RIBA (recombinant immunoblot assay)**:**

Confirms the result of the EIA screening test for **HCV antibodies**. Reveals no information about the hepatitis C virus itself.

- PCR (polymerase chain reaction)**:**

If your antibody test is positive, then the doctor needs to know if you still have the actual hepatitis C virus in your body. The PCR test is much more sophisticated, and **looks directly for the hepatitis C virus.** A positive PCR test indicates current infection with HCV.

Remember that the EIA and RIBA blood tests look for antibodies to HCV. Only the PCR test, which detects actual hepatitis C viral particles, can tell you for sure if you are or are not currently infected with HCV.

What is the treatment for HCV?

For the 10-30% of those people who show signs and symptoms during the acute phase of HCV infection, treatment is rarely needed and is limited to re-hydration of the body by giving saline solution through an I.V.

For the 70-85% of HCV-infected adults who become chronic carriers of the hepatitis C virus, there are currently **two** FDA-approved combination treatments and ***one*** single-therapy treatment. So there are three total treatments available in the United States.

Combination HCV treatment involves taking two drugs for 24-48 weeks depending on the genetic type (1-6) of HCV**:**

- **Pegylated Interferon:** An immune-stimulating substance which is injected under the skin once weekly

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- **Ribavirin: A**nti-viral tablets taken by mouth daily

The single-therapy treatment is usually reserved for those patients whose initial HCV therapy was unsuccessful

  - Interferon alfacon-1: An immune-stimulating substance which is injected under the skin three times weekly for at least 24 weeks

The goal of HCV treatment is to suppress the virus so that it can no longer reproduce itself in the liver. This significantly decreases the risk of liver fibrosis, cirrhosis and liver cancer. Persons with chronic hepatitis C should be referred to healthcare professionals with experience in the treatment of HCV (either a gastroenterologist or a hepatologist.)

You can find more detailed hepatitis treatment information on the web page for ‘Website Referral, Treatment and Patient Assistance Programs.’

How many times can I get HCV?

- 15-30% of those with acute hepatitis C will resolve the infection completely, usually by the sixth month after initial infection. This means that the virus leaves the body on its own. We call this spontaneous resolution.

- 70-85% of those with acute hepatitis C will not resolve HCV infection, and will become chronic carriers of the virus and probably require treatment at some point. Up to half of those patients who complete HCV treatment will successfully suppress the infection.

Even if HCV infection is resolved--whether spontaneously or because of treatment--anyone can become re-infected. Unfortunately, the HCV antibodies left behind from the first infection are not powerful enough to prevent re-infection and illness.

Can the hepatitis C virus stay in the body permanently?

Yes. There is a lifelong--or chronic--state of hepatitis C. As discussed earlier, 70-85% of those infected with HCV will become chronic carriers of the virus. However, young children (especially infants) who become infected with HCV are more likely than adults to resolve the infection spontaneously.

Is HCV deadly?

HCV is responsible for the deaths of around 10,000-12,000 people per year in the United States. By comparison, the number of deaths per year from HIV is around 15,000; the number of deaths per year from Hepatitis B is about 5,000. Ten to twenty percent of chronic HCV infections left untreated will progress to cirrhosis (serious liver disease), and 1-5% will progress to liver cancer (*even more* serious liver disease.).

To minimize the risk of serious illness and death from chronic HCV, an infected person should:

- Abstain from alcohol use.
- Avoid hepatotoxic drugs such as acetaminophen (Tylenol) that may worsen liver damage.
- Not donate blood, body organs, other tissue, or semen.
- Not share any personal items that may have blood on them (e.g., toothbrushes and razors).
- Discuss the risk for transmission with your partner and discuss the need for counseling and testing.
- Discuss treatment with a physician who specializes in liver diseases. This specialist is called a gastroenterologist or hepatologist.

If you are a chronic carrier of HCV, you should be tested for exposure to both the hepatitis A virus (HAV) and the hepatitis B virus (HBV). You should be vaccinated against whichever one(s) you have not been exposed to. It is very important to avoid becoming ill with two or more types of viral hepatitis.

What are the best ways to prevent becoming infected from HCV?

The best way to avoid infection from HCV is to completely avoid sharing intravenous (IV) recreational drug use equipment. Do not shoot drugs.
If you shoot drugs, stop and get into a treatment program.
If you can't stop, never share drugs, needles, syringes, water, or "works."

- **There is no vaccine against HCV**
- Do not share personal care items that might have blood on them (e.g., nail clippers, razors, toothbrushes).
- Consider the risks if you are thinking about getting a tattoo or body piercing. You might get infected if the tools have someone else's HCV-positive blood on them or if the artist or piercer does not follow regimented and sanitary health practices.
- If you are a health care or public safety worker, always follow routine barrier precautions and safely handle needles and other sharps.

If you have ever been exposed to HCV, even if you resolved the infection spontaneously or through treatment, you should not donate blood, organs, or tissue.

What does someone who is pregnant need to know about HCV?

If you are pregnant or even thinking about becoming pregnant, we would like you to take the time to read what we have provided below.

Treatment

Interferon does not appear to have an adverse effect on the embryo or fetus. However, the data is limited, and the potential benefits of interferon use during pregnancy may strongly outweigh possible hazards of waiting until after pregnancy.

Ribavirin use is questionable during pregnancy because there are no large studies of use during human pregnancy, and ribavirin causes birth defects in several animal species.

Transmission

HCV is not passed from mother to unborn child while the unborn child is in the uterus (womb). HCV is only transmitted from the pregnant mother to the baby during delivery

when both the mother and child's blood may mix. HCV transmission occurs in only 5% of babies born to HCV+ mothers. The risk of HCV transmission from mother to baby during delivery appears to be related to the level of virus in the pregnant mother and not to the route of delivery. That means that the more virus in the mother's body, the greater the chance that she will pass the infection on to the child as it is being delivered.

After Delivery

At delivery, healthcare staff and the baby's pediatrician should be notified of the mother's hepatitis C carrier state. If the mother is HCV positive, the baby should have at least one HCV antibody blood test during the first 18 months to see if it has been infected. There is another blood test which is more exact and can be offered as early as the first or second month of life in the event that an earlier determination of HCV exposure is desired. As explained above, this is the PCR test. Remember that the PCR looks directly for the virus which it can detect just a few weeks after exposure six weeks to six months for the body to make antibodies after HCV exposure.

The CDC has determined that there is no evidence that breast-feeding mothers who have HCV can infect their babies. However, these mothers should consider abstaining from breast-feeding if their nipples are cracked or bleeding.